



FSA Common Land Unit Digitizing Tool Version 5

An ArcView Extension for Creating and
Managing Common Land Unit Data Files.

Topics of Discussion



- **CLU Digitizing Tool Background**
- **Starting ArcView and opening the extension**
- **Adding DOQ Image data to the View**
- **Opening the CLU Digitizing Toolbar**
- **Creating and saving CLU Files**
- **Using the drawing and editing tools**
- **Updating CLU Attribute Data**
- **Using the Quality Control Tools**
- **The Right Mouse Click Popup Menu/Snapping**
- **Digitizing Utilities**
- **Saving your Project**
- **Using the Wetland Tool**

Introduction to the CLU Digitizing Tool



■ Why we developed the Digitizing Tool

- ◆ To make it easier to create and edit common land unit files.
- ◆ Data needs to be created and edited at an appropriate scale.
- ◆ To provide Error Checking and Quality Control features.
- ◆ To automate attribute data entry.

Introduction to the CLU Digitizing Tool



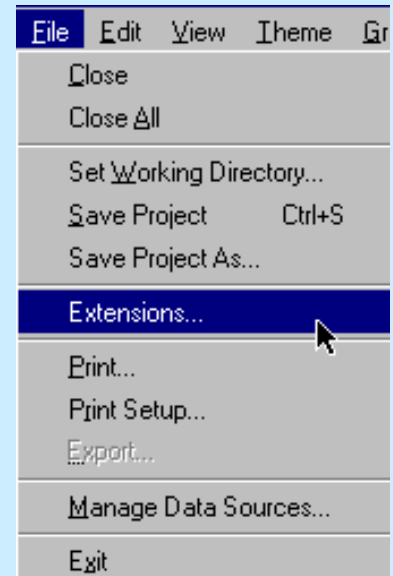
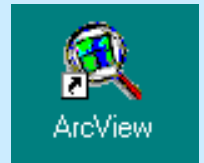
■ Features of the Digitizing Tool

- ◆ Puts commonly used functions on a single tool bar
- ◆ CLU files are created with the appropriate attributes
- ◆ Limits the scale for drawing and editing
- ◆ Changes to standard draw tools reduce the possibility of creating overlapping polygons (CLU Fields)
- ◆ Simplifies attributing tabular data with dialog boxes
- ◆ Automatically calculates acreage as new CLU Field polygons are created or modified

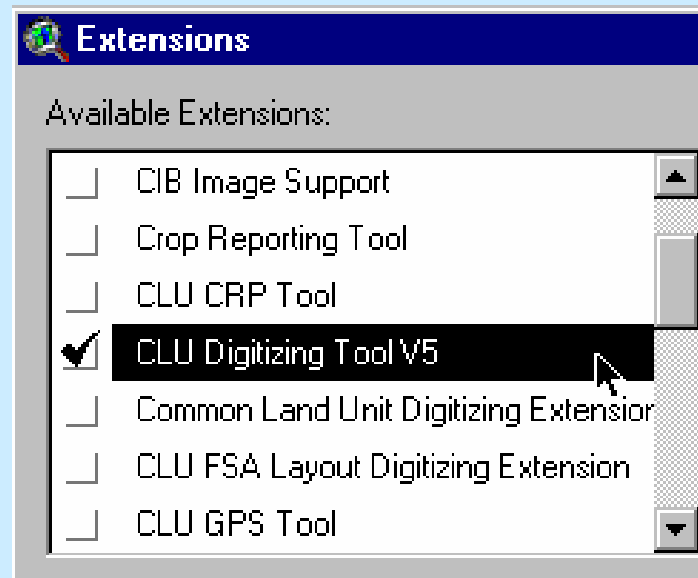
Loading the Extension



- Double Click the ArcView Icon on the Desktop
- The CLU Tool is an “extension” to ArcView and is called the “CLU Digitizing Tool v5” extension
- Click on the Extension option of the File Menu to open the ArcView Extension Dialog



Loading the Extension

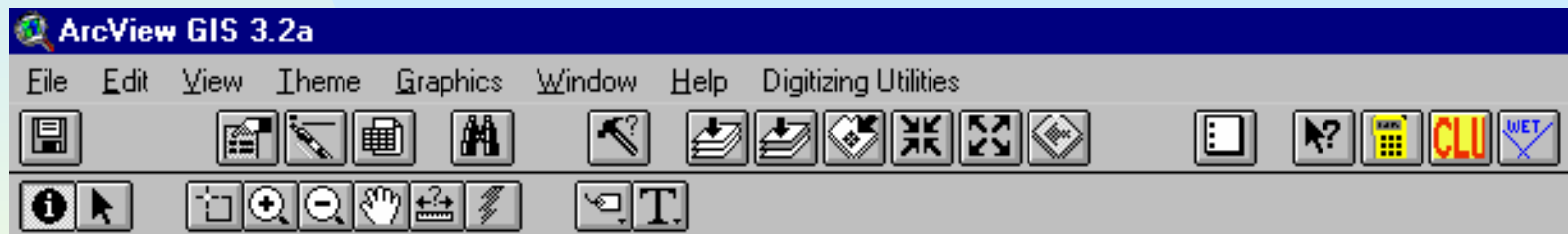


Check the **CLU Digitizing Tool V5** as shown above and click on the “OK” button. This will load the CLU digitizing tools into your current project.

The ArcView Toolbar



- Click on the Red and Yellow CLU button to open the floating **FSA CLU Digitizing Toolbar**, which has the tools you will use to create and edit your data



- The toolbar can be moved by clicking on the blue bar and dragging the object

Digitizing Tool Floating Toolbar



In conjunction with the standard ArcView toolbars, this toolbar has all of the tools that you need to create and modify Common Land Unit polygons.

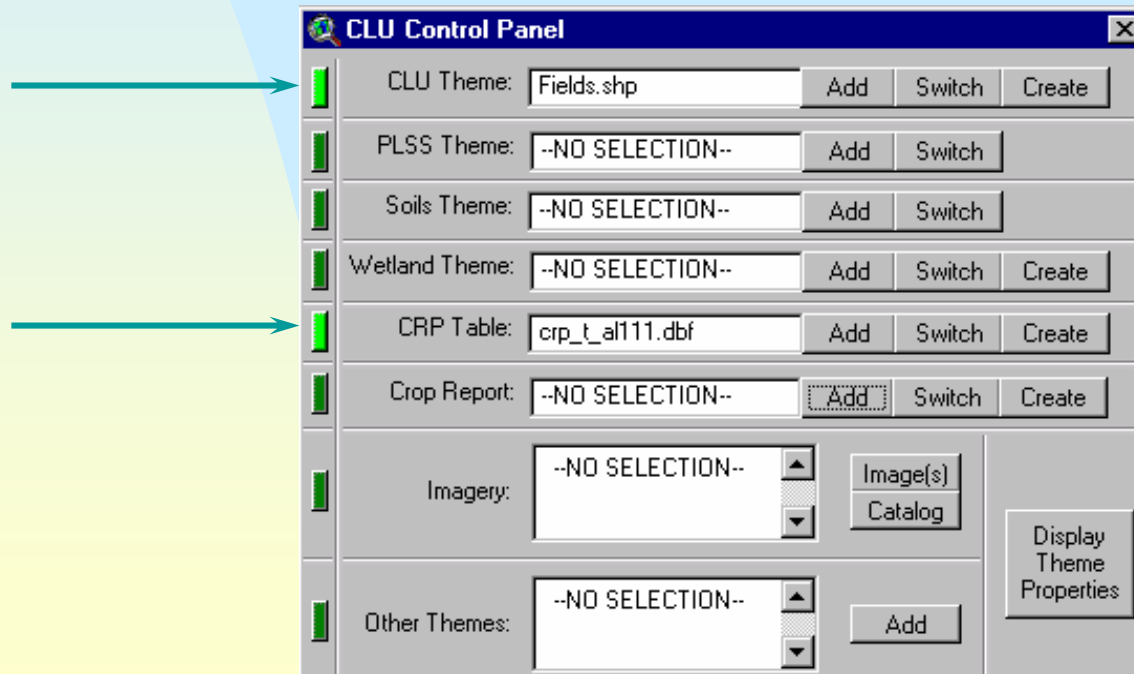


This button opens the CLU Control Panel

CLU Control Panel



The “CLU Control Panel” allows the user to specify and add the following themes; a CLU theme to edit, a PLSS theme, a soils theme, Imagery theme, Wetland theme, CRP table, and a Crop Report theme. The green light indicates which themes are loaded.



Adding DOQ Image Data



One of the first things you need to do is add a DOQ image as a data layer which you will use as your base map for digitizing.

Select from the drop-down list to change the source type.

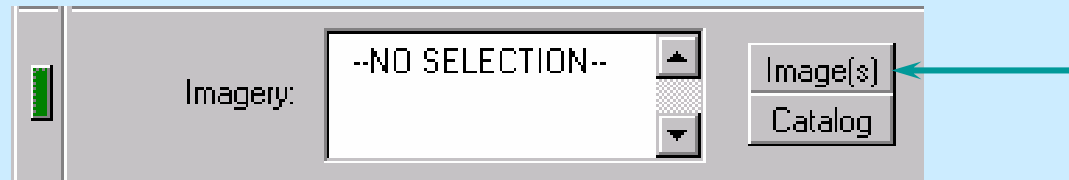
At the Service Center, images will generally be one of three types:

- TIF (or other standard format) image files (*.tif)
- MrSID compressed image files (*.sid)
- Image catalogs (collections of TIF images *.dbf)

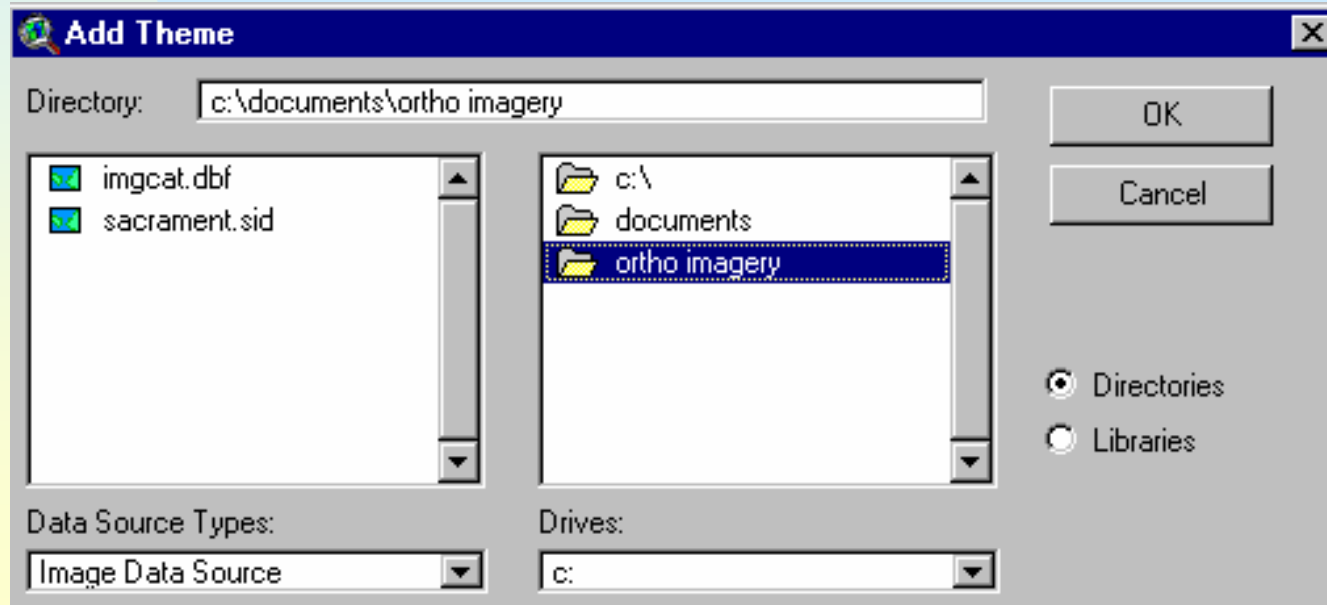
Adding DOQ Image Data



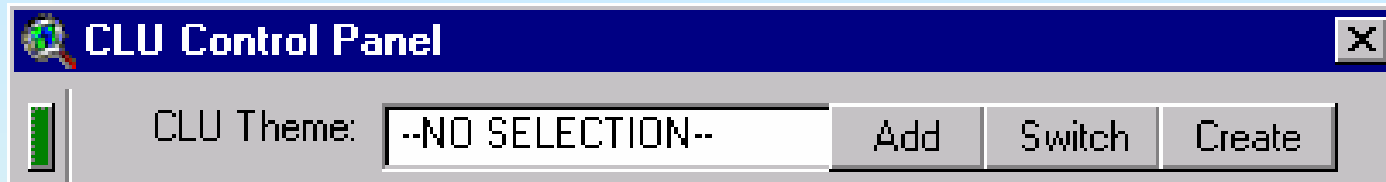
- Add the Image data with the “Image(s)” button



- Navigate to the Image file and click OK



Getting Started



Clicking on the **“Create”** button in the CLU Theme box in the Control Panel starts the process of creating a new, empty CLU file. A pop-up window will prompt you for a new CLU file name and directory location.

Choose the correct Drive Letter from the drop-down menu labeled **“Drives.”** Then navigate through the **“Directories”** window until you select the correct directory. Finally, type in the appropriate file name in the **“File Name”** window.

NOTE: Make the name unique, since more than one person may be working in a single county. Check with your supervisor for the current file structure format.

After typing in the name, click the **"OK"** button. The file will be created and then added to the legend of your view.

Getting Started



- The new empty CLU file, which you must save regularly, is created with the standard CLU attribute table, as defined by the 8-CM document
- The Acreage Calculator is useful for adding the acreage to a previously created file (such as data converted from GRASS)
- Tools will be added later to help with the conversion of data from other sources

Getting Started



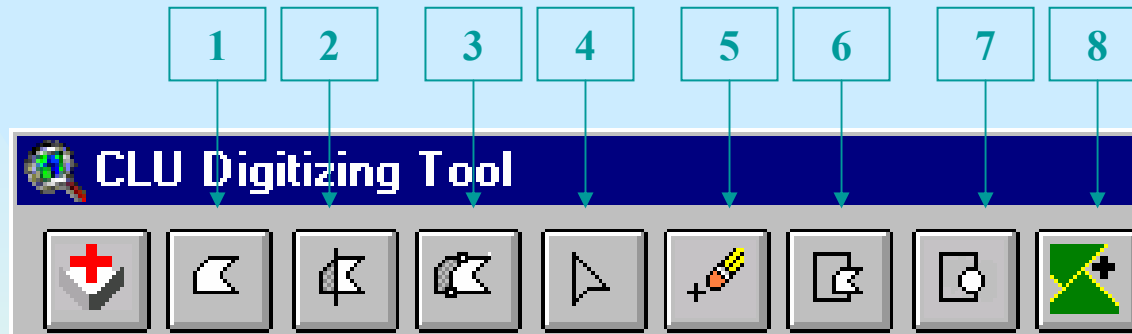
When using the CLU Digitizing Tool, you need to be conscientious about your digitizing technique. For example, if you are creating a new crop field for a farmer, you do not want to leave gaps and omit areas from the crop field. You also do not want to create a field that overlaps an existing field.

Using the appropriate tools minimizes the chances that these kinds of errors will occur.

Working at an appropriate scale will also help to minimize these kinds of problems. The modified drawing tools prevent you from digitizing at a scale greater than 1:4800. However, a scale of about 1:2000 to 1:3000 is more appropriate for drawing most common land unit features correctly.

If you make a mistake, use the UNDO menu option on the Popup Menu (before you save your work!).

Drawing and Editing Tools



1 - Add Polygon

2 - Split Polygon

3 - Add Adjacent Polygon

4 - Vertex Editor

5 - Delete Land Unit

6 - Create Inclusion

7 - Create Circular Inclusion

8 - Combine Polygons

Add Polygon Tool

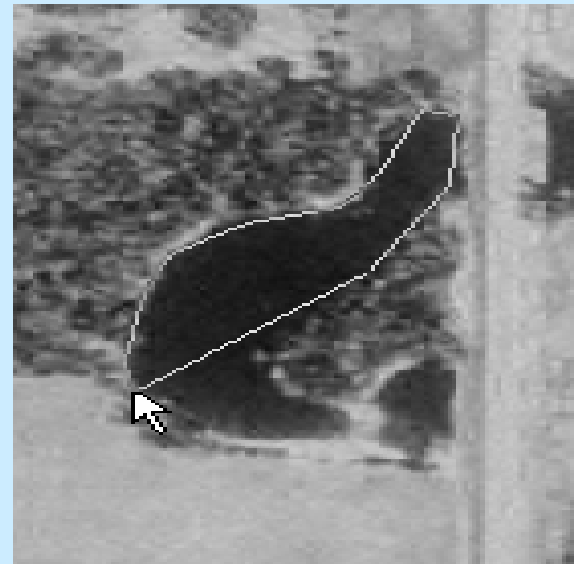


The *Polygon tool* allows you to draw a simple **polygon**.



The **polygon draw tool** is used for adding new CLUs to the shapefile. The Polygon Tool will not allow you to draw a polygon that overlaps an existing polygon. If you draw an overlapping polygon it will clip out any inclusions and snap to any existing polygons.

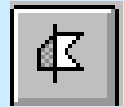
Use the mouse to click along perimeter of the CLU you are adding. Double click to end the edit.



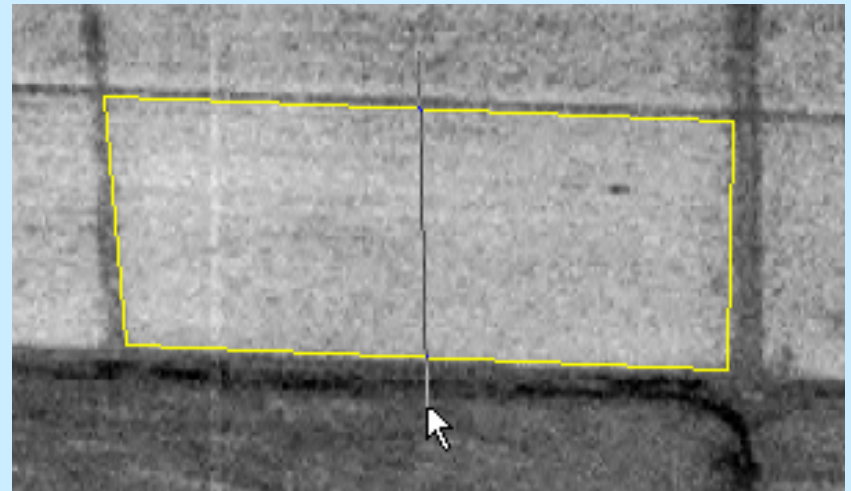
Split Polygon



The *Split Polygon tool* allows you to draw a line to split polygon features and create a **new polygon or multiple polygons**.



Click once outside of polygon, click along the line where the split needs to be made, and double click outside of the polygon to end the edit.



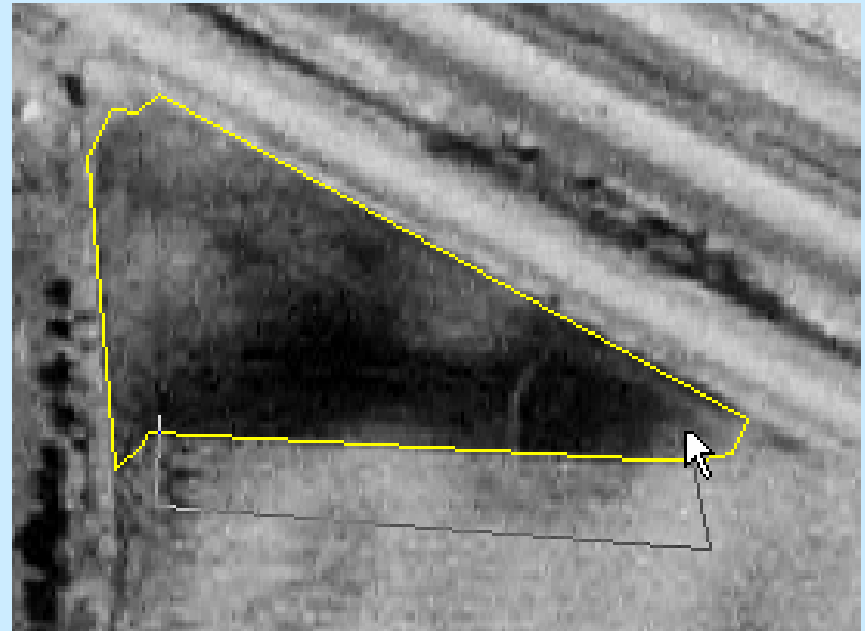
Add Adjacent Polygon



The *Add Adjacent Polygon tool* allows you to **append** a new polygon adjacent to other existing polygons.



Click on the “Add Adjacent Polygon” button and place the first point of the new polygon just inside the polygon it is adjacent to. Proceed to draw the new CLU, and double click the last point just inside the adjacent polygon.



Vertex Editor

The *Vertex Editor tool* allows the user to **reshape** a common land unit polygon by moving, adding, or deleting vertices.



To reshape a single polygon or line:

Click inside the polygon or directly on a line. Tiny squares called “vertex handles” will appear along the polygon or line. Click and hold the left mouse button down on one of these handles. Move the mouse to a new location and release the mouse button, and the shape of the object will change accordingly.

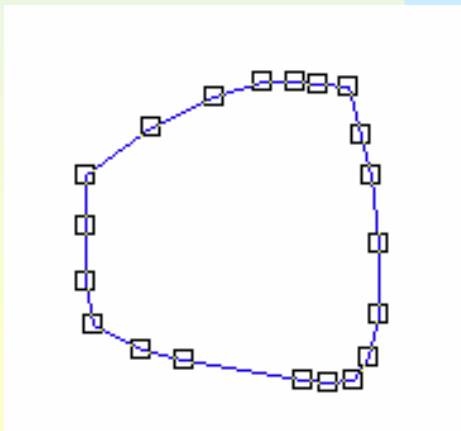
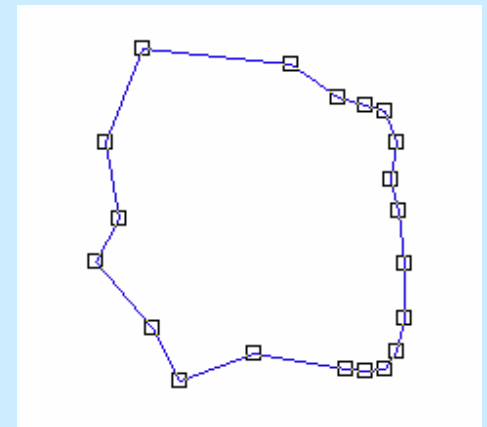


Figure 1

Figure 2



Delete Land Unit

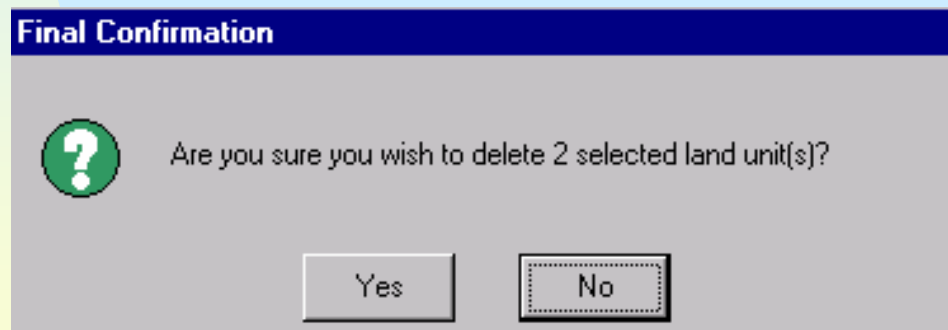


The *Delete Land Unit tool* allows the user to delete a common land unit polygon.



To delete a CLU, click “Delete Land Unit” tool, then click on the CLU(s) to be deleted. To delete multiple CLUs click and drag to highlight the CLUs to be deleted.

Before the CLU is deleted, the Final Confirmation dialog box will be displayed as follows:



Click on:

- “Yes” to delete the selected land unit(s)
- “No” to cancel the request to delete the land unit(s).

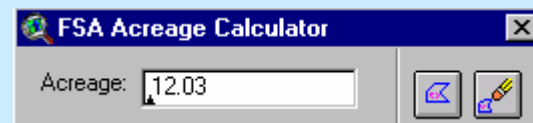
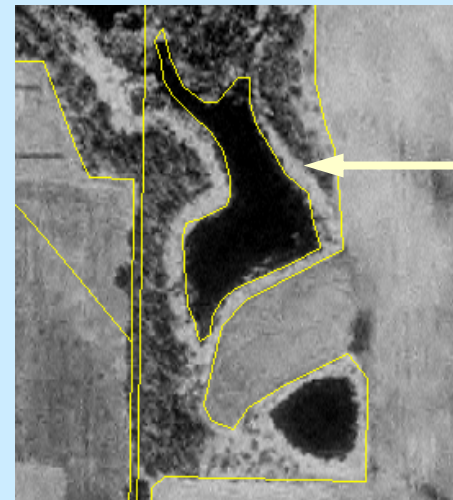
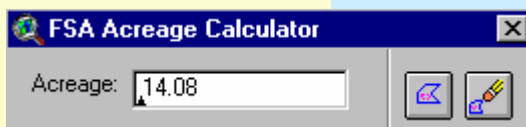
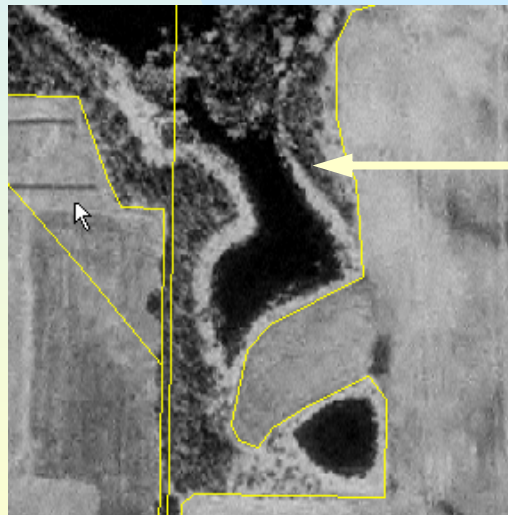
Create Inclusion



The *Create Inclusion tool* allows the user to draw a polygon inside an existing polygon.



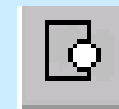
The acreage in the new polygon is subtracted from the original polygon. For example, this tool can be used to remove a pond or small tree stand from a field.



Circular Inclusion Tool



The *Circular Inclusion tool* allows you to draw a **circular polygon**.



The “Create Circular Inclusion” tool allows the user to draw a circular field inside an existing polygon. The new polygon will clip itself to the surrounding farm boundary if the two boundaries intersect. The acreage in the new polygon(s) is/are subtracted from the original polygon. For example, this tool can be used to create a CLU for a field that has circular irrigation.



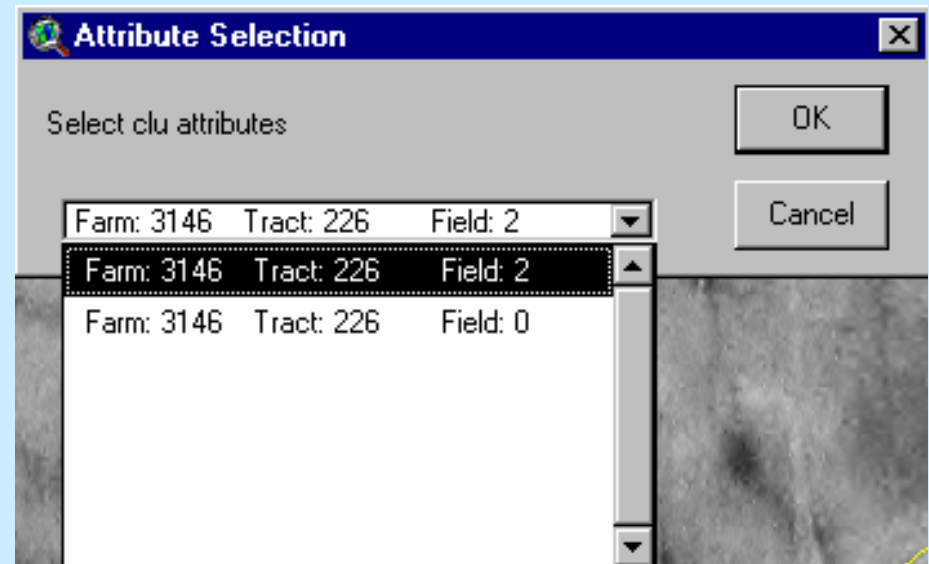
Combine Land Units



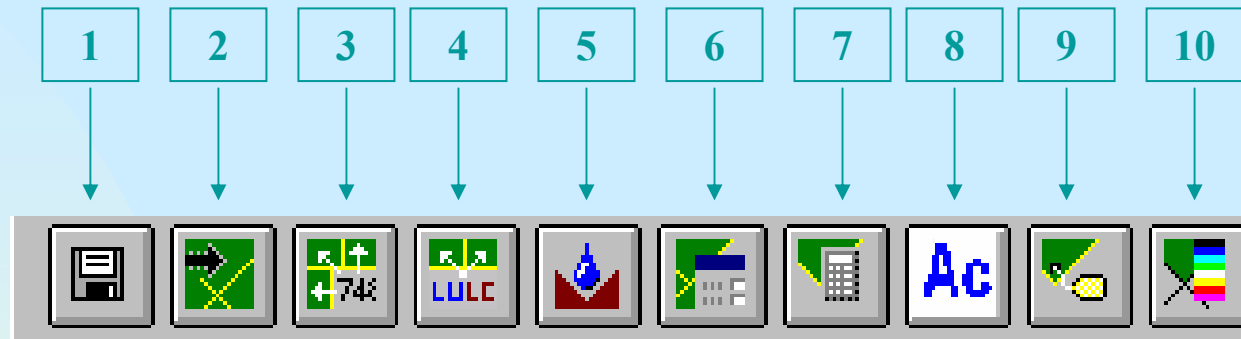
The *Combine Land Units* button allows the user to combine several selected CLUs into one CLU.



First, hold down the “shift” key and use the select button on the ArcView toolbar to select the polygons in the coverage that are going to be combined, then click the Combine Land Units button. A graphic will pop up asking you to select the CLUs attributes. You will select one of the polygons into which the others will be combined.



Attribution Tools



1 - Save Edits

2 - Search CLU and PLSS

3 - Change Farm/Tract Numbers

4 - Land Use Land Cover

5 - Set HEL Status

6 - Attribute Land Units

7 - Acreage Calculator

8 - Update System Acreage

9 - Multi-Item Labeling Tool

10 - Color Palette

Search CLU and PLSS



The *Search CLU and PLSS* button allows the user to search the CLU layer by using Farm, Tract, Field or Section-Township-Range numbers.



- New Set:** Selects every polygon with the corresponding number
- Select from Set:** Selects polygons within the already selected set, narrowing the selection
- Add to Set:** Adds polygons to already selected polygons, creating a larger set of selected polygons
- Locate:** Zooms to the polygons searched for without selecting them

Mathematical Operators:

- = selects polygons equal to the number entered
- > selects polygons greater than the number entered
- >= selects polygons greater than or equal to the number entered
- <> selects polygons that do not equal the number selected
- < selects polygons less than the number entered
- <= selects polygons less than or equal to the number entered

A screenshot of the "CLU Search" dialog box. It has a title bar with a magnifying glass icon and the text "CLU Search". Inside, there are four radio buttons: "Farm", "CLU Number", "Tract" (which is selected), and "Sec-Twp-Rng". Below these is a text input field containing the number "21". Underneath the input field is a section titled "Mathematical Operators" containing six radio buttons arranged in two columns: "=", "<>", ">", "<", ">=", and "<=". The "=" operator is selected. At the bottom of the dialog are five buttons: "New Set", "Locate", "Sel from Set", "Add to Set", and a larger "Help" button.

Change Farm/Tract Number



The **Change Farm/Tract Number** button allows the user to change a farm number and/or a tract number on one or many selected CLUs.




First, select the polygon(s) that need to be updated, then click on this button. An attribution window will appear that will allow you to change farm and/or tract number. To change a Farm Number only, leave the tract box blank. To change only a Tract number, leave the Farm box blank.

Change Farm/Tract Numbers

Farm:

Tract:

Farm/Tract Numbering

 The " Farm" number will not be modified
Change the " Tract" number to "106 " on 1 selected land units

Land Use Land Cover



The Land Use Land Cover button allows the user to assign a land use code to one or multiple CLUs. Use the “select” button on the ArcView Toolbar to select CLUs (hold the shift key for multiple units). Once the land units are selected open this tool and select a code from the drop-down menu.



You will be asked if you wish to save the update to the number of land units selected. Choose “Yes” to save the changes and “No” to cancel the procedure.

Set HEL Status

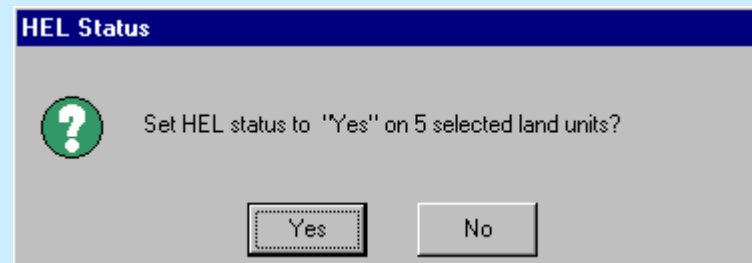
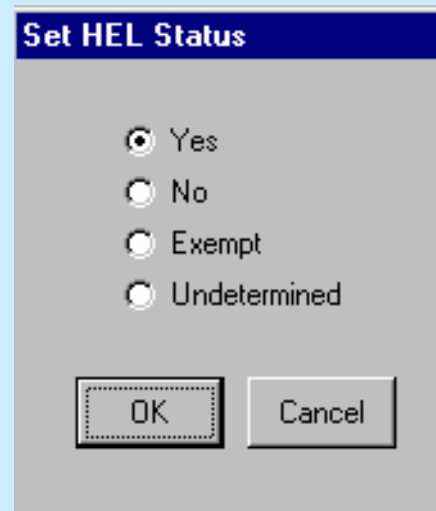


The *Set HEL Status* button allows the user to set the HEL status of one or many CLUs to any of the following:



- **HEL (Yes)**
- **NHEL (No)**
- **EHEL (Exempt)**
- **Undetermined**

Multiple selected CLUs may be changed with this button. First, using the “shift” key and the select button, select the polygons, then select this button. An attribution window will pop up prompting the user to choose an “HEL” status. It will then ask if the HEL status should be changed on the number of polygons selected. Choose “Yes” or “No.”



Attribute Land Units



The *CLU Attribute Data Entry* dialog allows the user to change the following:



- farm number
- tract number
- field number
- Program Acreage
- HEL status
 - HEL (Yes)
 - NHEL (No)
 - Exempt
 - Undetermined
- Comments

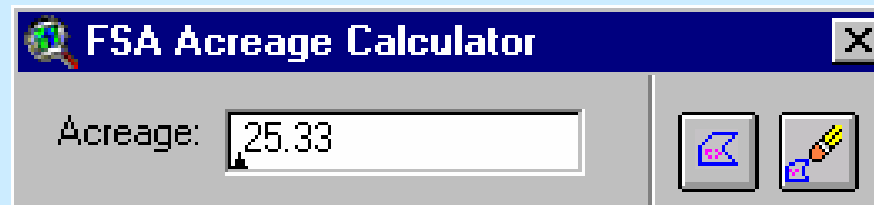
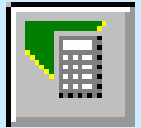
A screenshot of the "FSA CLU Attribute Data Entry" dialog box. The dialog has a title bar with a magnifying glass icon and a close button. It contains several input fields: "Farm:" with the value "0", "Tract:" with the value "2703", "Field:" with the value "2", "Program Acres:" with the value "0", and "System Calculated Acreage:" with the value "0.46". There is a "Comments" text area. Below the comments is a "HEL Status" section with four radio buttons: "Yes" (which is selected and has a dotted border), "No", "Exempt", and "Undetermined". An "Update" button is located at the bottom right of the dialog.

Only one CLU can be updated at a time using this button. First, select a CLU that requires attribution updates. Next, change any of the attributes that need to be changed.

Quick Acreage Calculator



The *Quick Acreage Calculator* button allows the user to review the system-calculated acreage for the selected CLU(s).



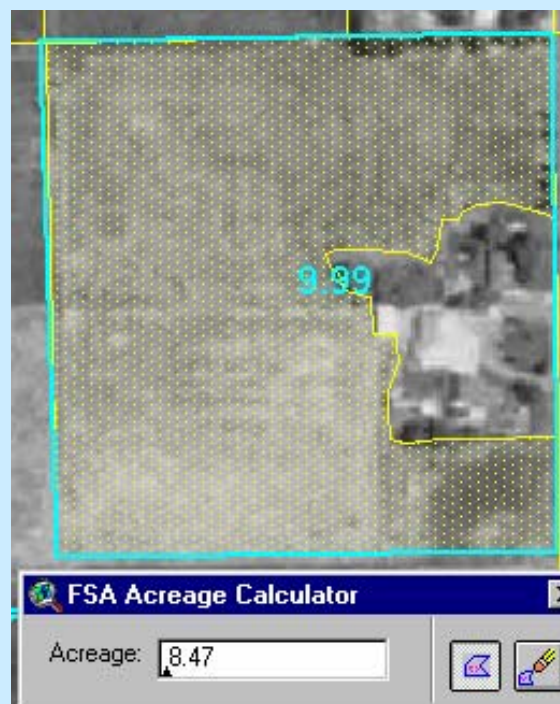
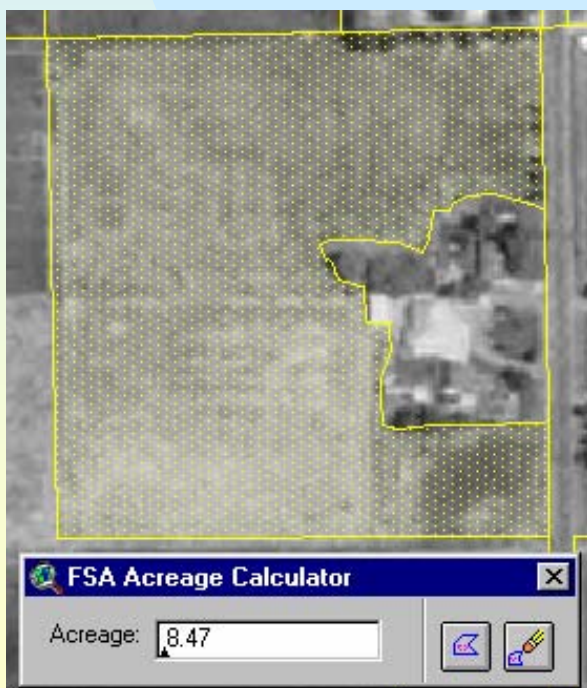
Multiple CLUs may be selected by holding the shift key and selecting units with the “Select” button before clicking on the acreage calculation button. This will give the total acreage for the selected CLUs.

This tool stays on the screen so the user can view multiple polygons without having to open it every time. If no CLUs are selected, the “Quick Acreage Calculator” will display zero as the acreage. This interface window can be kept open, and the acreage will adjust to match the selected polygon(s).

Quick Acreage Calculator



The two buttons on the right allow the user to manually check the acreage of an area, and to compare that acreage to the acreage of an existing polygon. With this tool, the user has the ability to draw an outline around a potential field and determine the acreage of that field (through the on-screen display), without adding a polygon to the layer. The button on the left deletes all of the lines drawn by the user using this tool.



Multi - Item Labeling Tool



The *Multi-Item Labeling Tool* button allows the user to add and remove text labels from the view. The user can also stack, order, and set preferences on the labels as well.



-Label Theme: Click on the down arrow to choose a theme to place labels on.

-Pre-Text: Type in a text string that will be placed in front of the label item.

-Item: Click on the down arrow to choose a label item (ex. Farm or Tract).

-Post-Text: Type in a text string that will be placed in back of the label item.

-New Line: Check off this box if each label should be on a separate line, un-check the box to put the text labels on the same line.

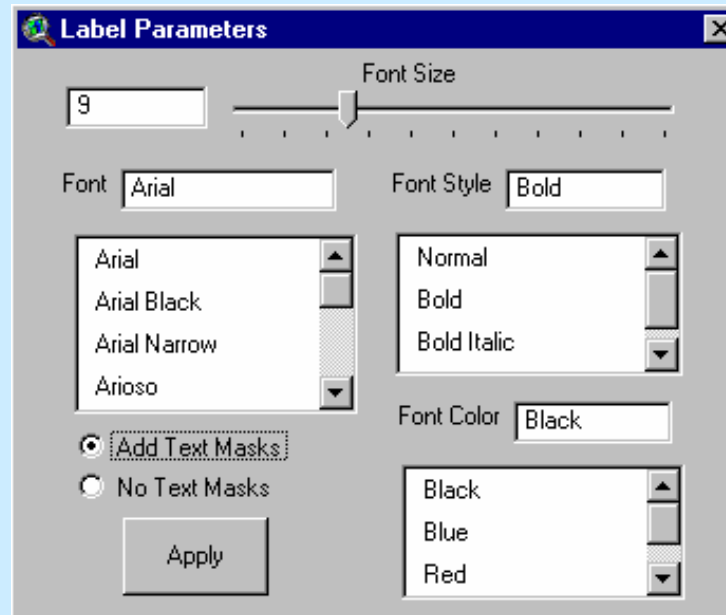
A screenshot of the "Multi-Item Labeler" dialog box. The title bar is blue with a magnifying glass icon and the text "Multi-Item Labeler". Below the title bar are five buttons: "Auto Label", a button with a list icon, "Data Off", "Properties", and "Delete All". Below these buttons is a "Label Theme:" label followed by a dropdown menu showing "Fields.shp". Below that is a table with four columns: "Pre-Text", "Item", "Post-Text", and "New Line". The table has six rows. The first row has "Farm:" in Pre-Text, "Farmnbr" in Item, an empty Post-Text, and a checked New Line box. The second row has "Tract:" in Pre-Text, "Tractnbr" in Item, an empty Post-Text, and a checked New Line box. The third row has "Field:" in Pre-Text, "Clunbr" in Item, an empty Post-Text, and a checked New Line box. The fourth row has "Total:" in Pre-Text, "Calcacres" in Item, "acres" in Post-Text, and a checked New Line box. The fifth row has an empty Pre-Text, "Blank" in Item, an empty Post-Text, and a checked New Line box. The sixth row has an empty Pre-Text, "Blank" in Item, an empty Post-Text, and a checked New Line box.

Pre-Text	Item	Post-Text	New Line
Farm:	Farmnbr		<input checked="" type="checkbox"/>
Tract:	Tractnbr		<input checked="" type="checkbox"/>
Field:	Clunbr		<input checked="" type="checkbox"/>
Total:	Calcacres	acres	<input checked="" type="checkbox"/>
	Blank		<input checked="" type="checkbox"/>
	Blank		<input checked="" type="checkbox"/>

Multi - Item Labeling Tool



Select “Properties” to change the font size, color or to add text masks.



“Auto-Label” will label every polygon in the layer if nothing is selected, or only the polygons that are selected.

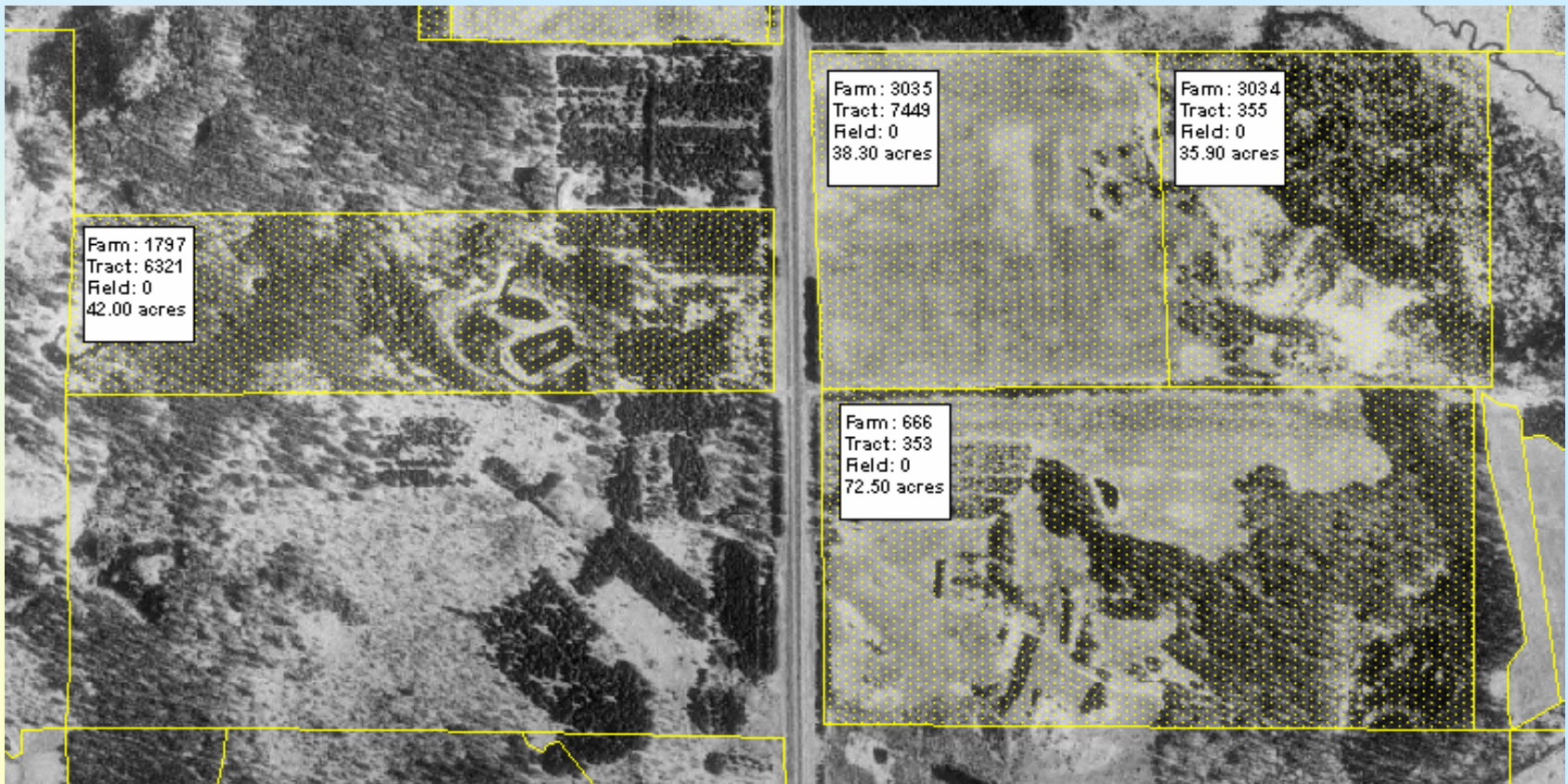
“Append Label Manually” allows the user to label each polygon by clicking on them one at a time.

“Delete All” deletes all existing labels.

Multi - Item Labeling Tool



This is an example of what the Multi-Item Labeling Tool looks like in ArcView:



Color Palette



The *Color Palette* button allows the user to change the Fill, Selection, and Outline colors of the selected Themes.



The Fill Pattern scale can be used to set the fill pattern to clear or semi-transparent fill so the imagery can be viewed through the CLUs.

A screenshot of the "Color Palette" dialog box. It has a title bar "Color Palette" in a dark blue box. Below the title bar, there are three columns of radio buttons labeled "Fill", "Selection", and "Outline". To the left of these columns is a list of colors with corresponding color swatches: Blue, Cyan, Green, White, Yellow, Red, Magenta, and Transparent. The "Transparent" option is selected in the "Fill" column. At the bottom, there is a "Fill Pattern" slider with "Dark" on the left and "Light" on the right. The slider is currently positioned towards the "Light" end. To the right of the slider are two buttons: "OK" and "Cancel".

	Fill	Selection	Outline
Blue	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Cyan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Green	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
White	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Yellow	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Red	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Magenta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transparent	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

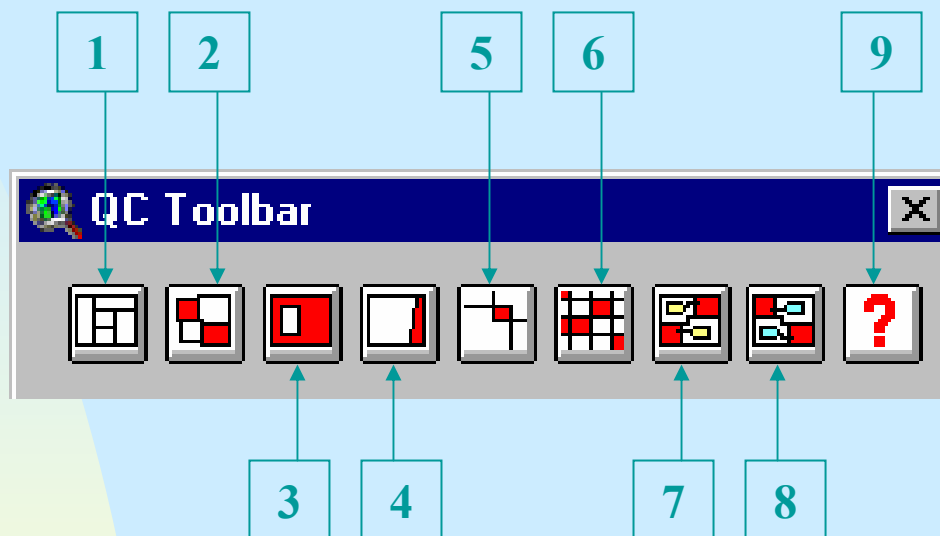
Dark Fill Pattern Light

OK Cancel

Quality Control Tools



Click on the *QC Tools* button on the Digitizing toolbar to open the Quality Control Tool.



1 - Clean

2 - Multipart Polygons

3 - Void Polygons

4 - Sliver Polygons

5 - Check for Overlaps

6 - Random Selection

7 - Tract/Farm Ratio

8 - Tract/CLU Ratio

9 - About QC Tools

Clean

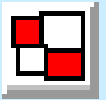


The *Clean Polygons* button initiates a process that “cleans” the current polygon theme.

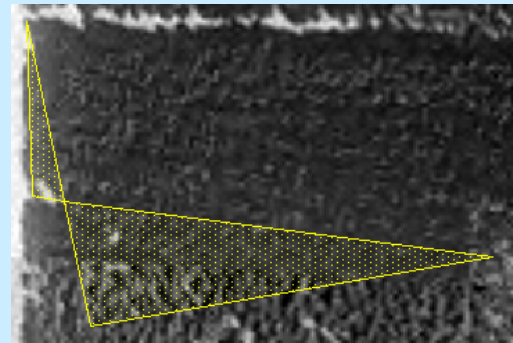
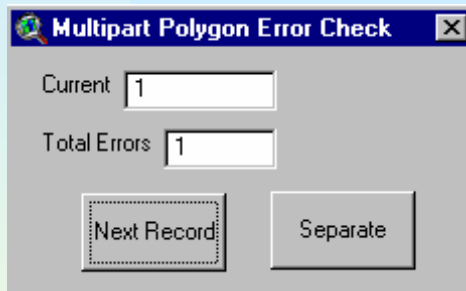


This routine checks for “NULL area” polygons (polygons that lack all area attribution), and then deletes them. The polygons deleted by the “**Clean Polygons**” function do not have visible shapes associated with them, and are usually left over from an ArcView edit function that did not close properly.

Shows Multipart Polygons



The *Show Multipart Polygons* button initiates a search for polygons that inadvertently cross an existing boundary line in the polygon you are creating.



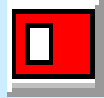
The number 8 is a good example of what these polygons might be shaped like, with two boundaries crossing each other in the middle. If there are multiple polygons in your data set you will get a small dialog box which gives you a count of the errors. The application will automatically zoom to the first offending polygon. Click on the “Separate” button to separate the current polygon into several polygons. The pieces can now be edited or deleted as necessary.

Click on the “Next Record” button to move to the next error (until there are no more errors).

Void Polygons



The *Void Polygons* button initiates a search for polygons that contain void areas.



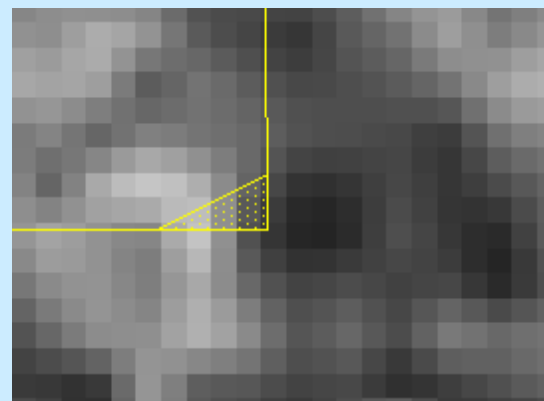
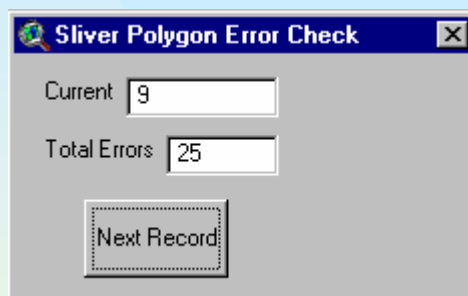
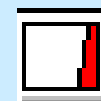
Void areas are areas within a polygon created by adding a loop in the boundary as you are creating a new polygon. This is similar to the multipart polygon, except that the loop is inside the polygon instead of outside. This creates a “NULL” area inside your polygon. This can usually be corrected by deleting one or more vertices from the void area.

Another type of void error, which this tool does not detect, is a doughnut hole within a polygon. This type of error may be caused when you create an inclusion and then delete the inside polygon. Visual inspection should be able to detect this type of error, by selecting all polygons in an area and look for areas where the digital orthophoto shows through.

Sliver Polygons



The *Sliver Polygons* button initializes the Polygon Sliver Detection Tool.

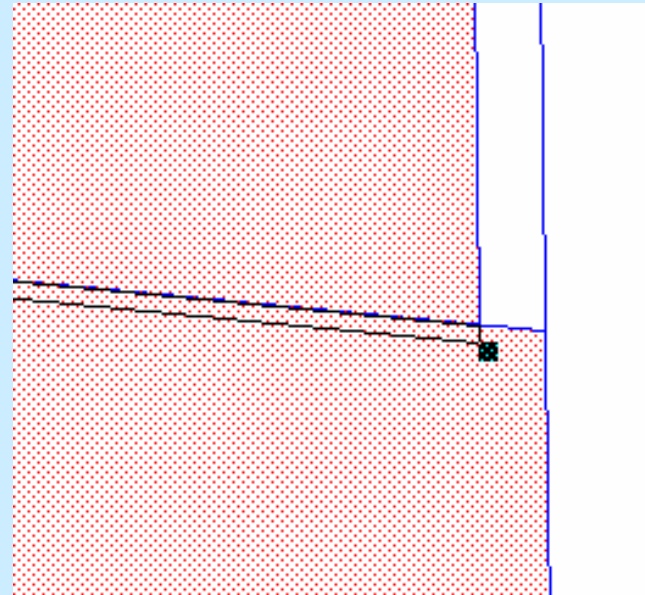
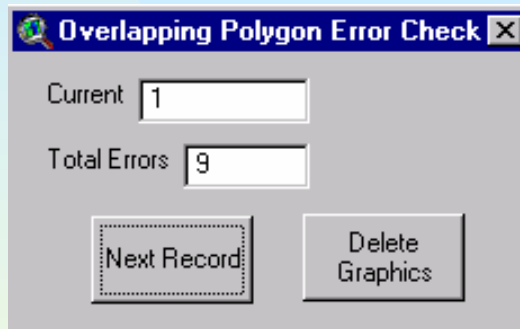


A pop-up window will allow you to enter a “size threshold” (default is .02 acres) for determining possible errors. The tool will then select all polygons that are smaller than this threshold, to be checked and/or verified. After selecting the polygons, the tool will allow you to cycle through the list and make corrections as necessary. In most cases, these polygons will be combined with adjacent polygons using the combine tool or they may just need to be deleted.

Check for Overlaps

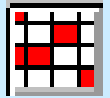


The *Check for Overlaps* button initiates a search for polygons that overlap in your data set.



A pop-up window will appear with a count of overlap errors. The program will automatically zoom to the extent of the polygons that are overlapping, and a “graphic” will be created that shows the extent of the overlap. The polygon and then be edited as necessary, most likely using the Vertex Editor.

Random Selection



The *Random Selection* button initiates a process that randomly selects polygons for the selected theme.

This tool will allow the Quality Control person to check a sample of the entire data. Once you have run the sample selection, you will have a series of polygons selected. You must convert these selections to a new shapefile. This can be found under the menu option “Theme,” and then by choosing “Convert to Shapefile.” Save this file under a different name, and the file can be put through a quality control check for accuracy of shapes and attribution.

NOTE: The “Random Sample Selection” tool is typically used for creating a random sample of a county’s fields for a spot check. It is rarely, if ever, used in the CLU Digitizing process.

Tract/Farm Ratio



The *Tract/Farm Ratio* button searches the CLU layer for tracts with multiple farm numbers and generates a table that lists each of these tracts and the farm numbers that they contain.



Tracts with Multiple Farm Numbers	
Tract	Farm
9	1017
9	1917
21	2100
21	3325
21	3387
64	3273
64	3384
79	2262
79	2622
106	3075
106	3095
140	3382
140	3385
237	216

Tract/CLU Ratio



The Tract/CLU Ratio button searches the CLU layer for tracts with duplicate CLU numbers and generates a table that lists each of these tracts and the CLU numbers that are repeated within them (excluding zero).



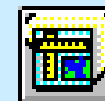
The screenshot shows a software window titled "Tracts with Duplicate CLU Numbers ...". Inside the window is a table with two columns: "Tract" and "Clu". The table contains the following data:

Tract	Clu
22	1
22	3
22	4
32	1
32	5
83	1

CLU Layout Extension



The *Create Layout Tool* allows you to create a custom map of selected land unit. When a view is open, you can create a very simple layout of what is displayed in the View.



The CLU Layout Extension allows you to label Common Land Units and print a standardized layout for quality control or for a customer. The extension is automatically loaded when you load the CLU Digitizing Extension. It is also available to load separately for labeling and creating layouts in other projects.

CLU Layout Extension

A screenshot of the "FSA Layout Tool" window. The window has a title bar with a magnifying glass icon and the text "FSA Layout Tool". Inside, there is a USDA logo at the top. Below it, the "Use Map Template" section has three radio buttons: "None" (selected), "Custom FSA", and "Standard ESRI". The "Map Orientation" section has two radio buttons: "Landscape" (selected) and "Portrait". The "Legend" section has two radio buttons: "On" and "Off" (selected). The "North Arrow" section has two radio buttons: "On" (selected) and "Off". The "Scale Bar" section has two radio buttons: "On" and "Off" (selected). The "Set Map Scale" section has two radio buttons: "Yes" (selected) and "No". At the bottom, there is a "Map Title:" label followed by a text box containing "Sherburne County, MN" and a "Make Map" button.

Choose the type of layout you want by clicking in the appropriate radio box {None, Custom FSA, or Standard ESRI}.

Choose the:

-map orientation {Landscape or Portrait}

-Legend {On or Off}

-North Arrow {On or Off}

-Scale Bar {On or Off}

-Set Map Scale {Yes or No} (you must click on “yes” when you select map scale, even though it is already highlighted).

Type in a Map Title in the space provided then click on “Make Map.”

A new layout will appear with all of the selected elements in place.

CLU Layout Extension



Sherburne County, MN



Setting State and County FIPS Codes



- The Set FIPS Button allows the user to set FIPS codes for the CLU layer.
- Enter the county and state FIPS codes for the county you are working on, including leading zeros if necessary.
- When the correct numbers are entered hit “Update” and all of the CLUs in the CLU layer will be updated with the proper FIPS code.

A screenshot of a Windows-style dialog box titled "Set FIPS". The dialog box has a blue title bar with a magnifying glass icon on the left and a close button (X) on the right. The main area is light gray and contains the text "Enter information including leading zeros:". Below this text are two input fields: "State Fips:" followed by a text box containing "10", and "County Fips:" followed by a text box containing "078". At the bottom of the dialog box are two buttons: "Update" and "Cancel".

PLSS Section Mapmaker



- Before opening the dialog, you need to create at least one document, a view containing the PLSS layer (must be a polygon layer, not a polyline layer),
- The CLU layer, and (optionally) the DOQ imagery
- If you want to utilize a locator inset map on your layout, also create a “locator map” view, which would contain the PLSS layer and also a Township layer (to make your locator map more readable).
- Use the multi-item labeling tool to label your CLU file as desired.
- You may also want to create your layout. If you create your own layout (or template) from scratch, you will need to include several tokens, which are used by the program to fill in information as section maps are created and printed.



PLSS Section Mapmaker



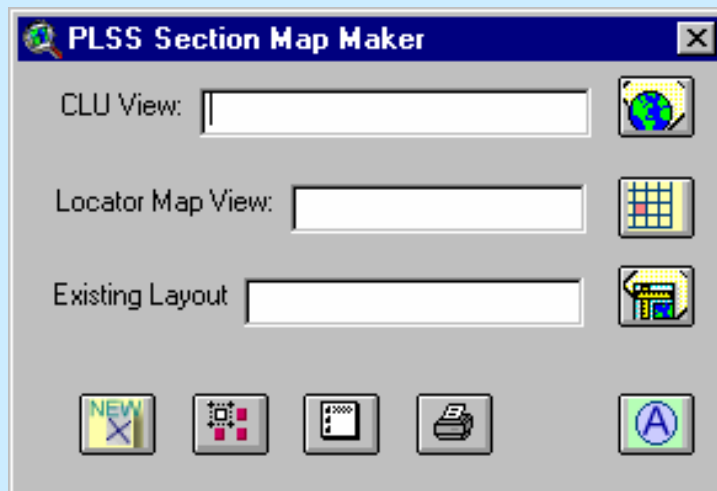
If you create your own layout (or template) from scratch, you will need to include several tokens, which are used by the program to fill in information as section maps are created and printed.

These tokens are:

- &twpname Township Name
- &twp Township Number
- &rng Range Number
- &sec Section Number
- &date Date

- These tokens can be used in any order and placed anywhere on your layout.
- These strings would be translated by the program as:
 - ◆ “Sec-Twp-Rng: 35 – 15 – 21” or “Twp-Rng-Sec: 15 – 21 – 35”.
- After you have printed the layouts using this program, the tokens are no longer visible, having been replaced by text.

PLSS Section Mapmaker



Select Locator Map View

Identify a Locator Map View, which will be used to generate a locator map on your layout. This view must contain the PLSS layer. It can also contain other layers, such as a township layer, which will make the locator map more useful.



Select CLU or Main View

Identify the CLU (or Main) View, which will be used for generating Section maps. This view must have a PLSS layer, and should have your CLU layer and orthoimagery.



Select Existing Layout

Identify an existing layout to be used for generating Section maps.

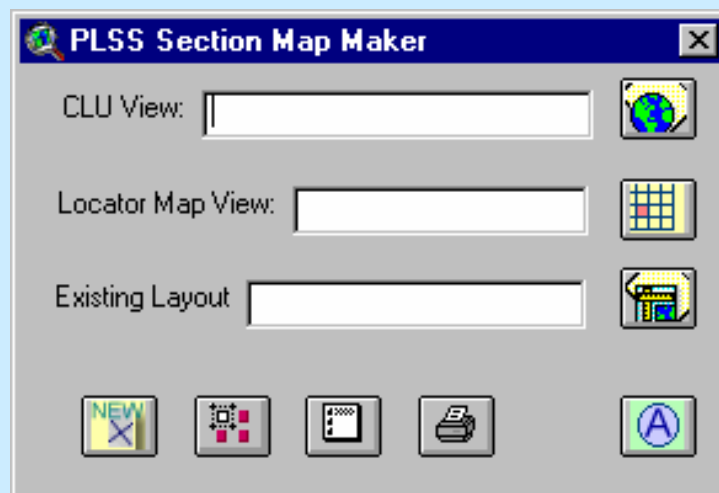


Create New Layout

If you have not previously created a layout in this project for generating Section maps, you can use this function to generate a basic map.

USDA Farm Service Agency

PLSS Section Mapmaker



Select Sections by CLU

Select the common land units using the CLU Search button. Then press this button to select the appropriate sections.



Select Sections and Townships from List

Select sections based on a list of Townships and Ranges. You will be given a list of Townships to select from and then a list of Sections.



Generate and Print Section maps

PLSS Sections must be selected for this option to work. If you wish to print your CLU layer with labels, they must be labeled before printing.



About PLSS Section Mapmaker

Use the About button to obtain standard information about the PLSS Section Mapmaker tool.

Right Mouse Click Popup Menu



When the Digitizing Tool extension is activated in ArcView, a number of editing options become available on a popup menu when you right click with with mouse.

Pan
Delete Last Point
Undo Feature Edit
Redo Feature Edit
Disable General Snapping
Enable Interactive Snapping
Hide Snap Tolerance Cursor
Clear Selection
Zoom In
Zoom Out
Zoom to Selected
Shape Properties

Maneuvering While Digitizing



- Click on the Right Mouse Button
- The *Popup* menu ***Pan*** option allows you to draw features that are outside the current viewing area.

Sometimes, while digitizing, the feature you are creating extends beyond the edge of the View screen. In order to ***Pan*** without interrupting digitizing, click and hold the RIGHT mouse button and a *Popup* menu appears with editing choices. Choose the ***Pan*** option and your View will automatically be shifted over.

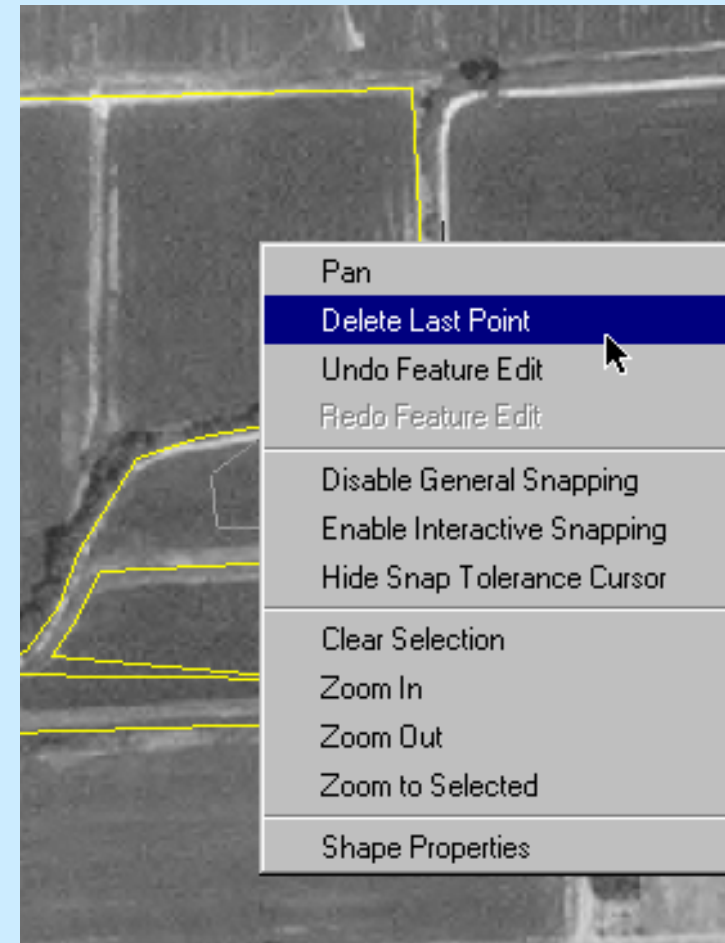


Polygon Draw Tool Error Correcting



- Click on the Right Mouse Button
- The *Popup* menu allows you to delete the last point entered

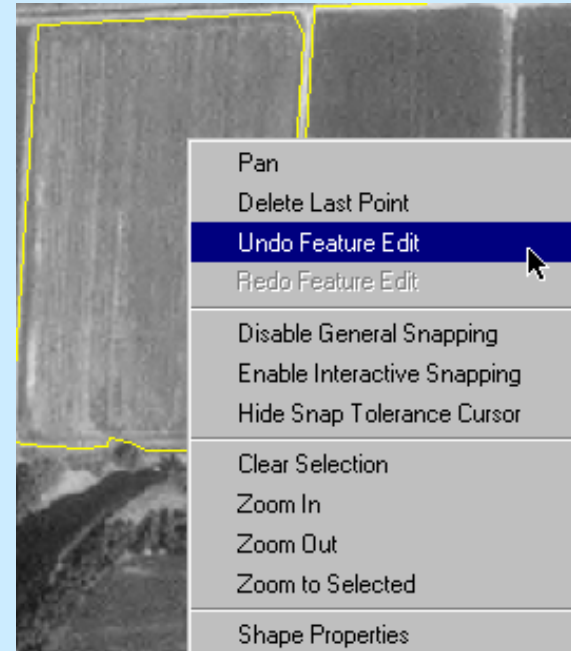
As you are creating new polygons, you may click on a bad point, creating a line where you did not want one. If you notice this while digitizing, click and hold the right mouse button. Again, a popup menu appears with editing choices. Choose **Delete Last Point** and the last set point will be removed. You can delete multiple points in the polygon that you are editing (in reverse order from most recent to the first point).



Vertex Tool Error Correcting



- Click on the Right Mouse Button
- The *Popup Menu Undo Feature Edit* allows you to fix incorrect feature edits



It is not difficult to make mistakes when adding, moving, or deleting vertices, which may result in overlapping boundaries. One way to correct this is to click and hold the right mouse button. A popup opens with editing choices. Choose **Undo Feature Edit**. You can undo multiple edits, until you get to the last saved copy of the file.

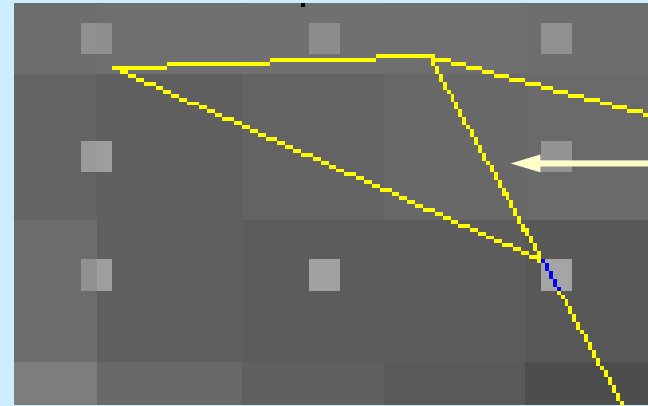
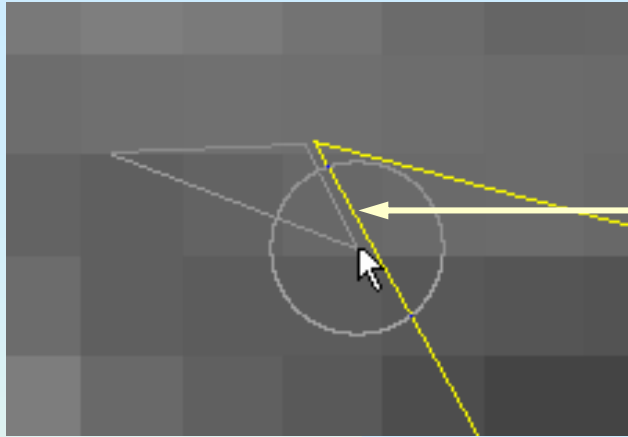
General Snapping



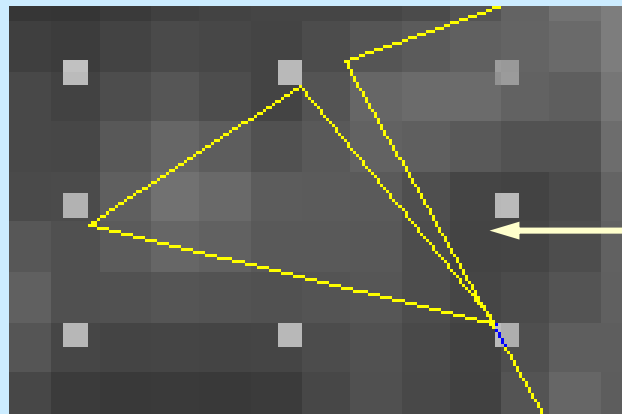
Snapping is the process of making two features meet exactly at the same coordinate. For example: making a vertex of one polygon match a vertex of another polygon at the exact same coordinate location.

General snapping corresponds to the entire polygon that is being manipulated. When general snapping is enabled, areas of the polygon that are not visible on the screen will snap to neighboring polygons.

General Snapping



The circle represents the snapping tolerance, and allows the digitizer to see where the polygon being drawn will snap to an existing polygon. As illustrated, the polygon digitized in the image above snapped to the edge of the polygon next to it. If snapping had been disabled, it may have been digitized improperly.



Interactive Snapping



Interactive snapping corresponds to the area that you are currently creating/manipulating. With interactive snapping, you can apply different snapping rules on a per vertex basis while you are adding a new line or polygon feature. You will be able to control how each vertex along the line or polygon boundary you are adding is snapped to existing lines or polygons in the theme.

Pan
Delete Last Point
Undo Feature Edit
Redo Feature Edit
Snap to Vertex
Snap to Boundary
Snap to Intersection
Disable General Snapping
Disable Interactive Snapping
Hide Snap Tolerance Cursor
Clear Selection
Zoom In
Zoom Out
Zoom to Selected
Shape Properties

Interactive Snapping

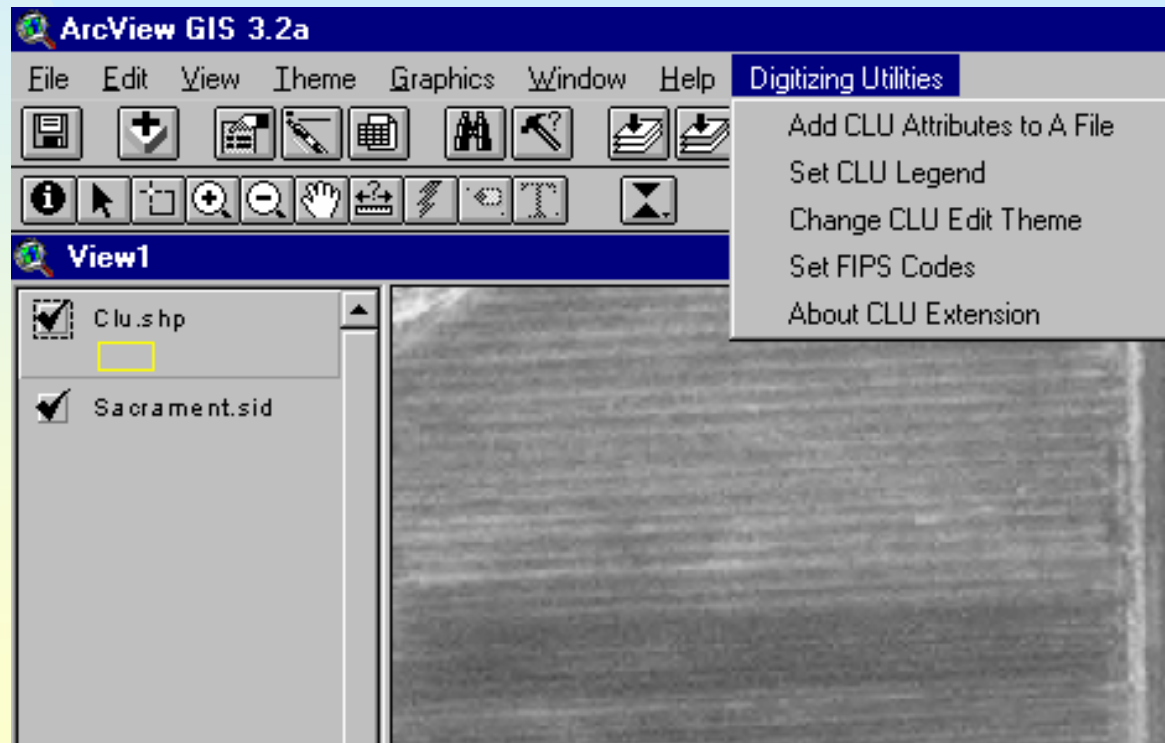


- ***Snap to Vertex***: snaps the next vertex to the nearest vertex in an existing line or polygon.
- ***Snap to Boundary***: snaps the next vertex to the nearest line segment in an existing line or polygon boundary.
- ***Snap to Intersection***: snaps the next vertex to the nearest node common to two or more lines or polygons.
- ***Snap to Endpoint***: snaps the next vertex to the nearest endpoint of an existing line.(Available for line themes only).

CLU Digitizing Utilities



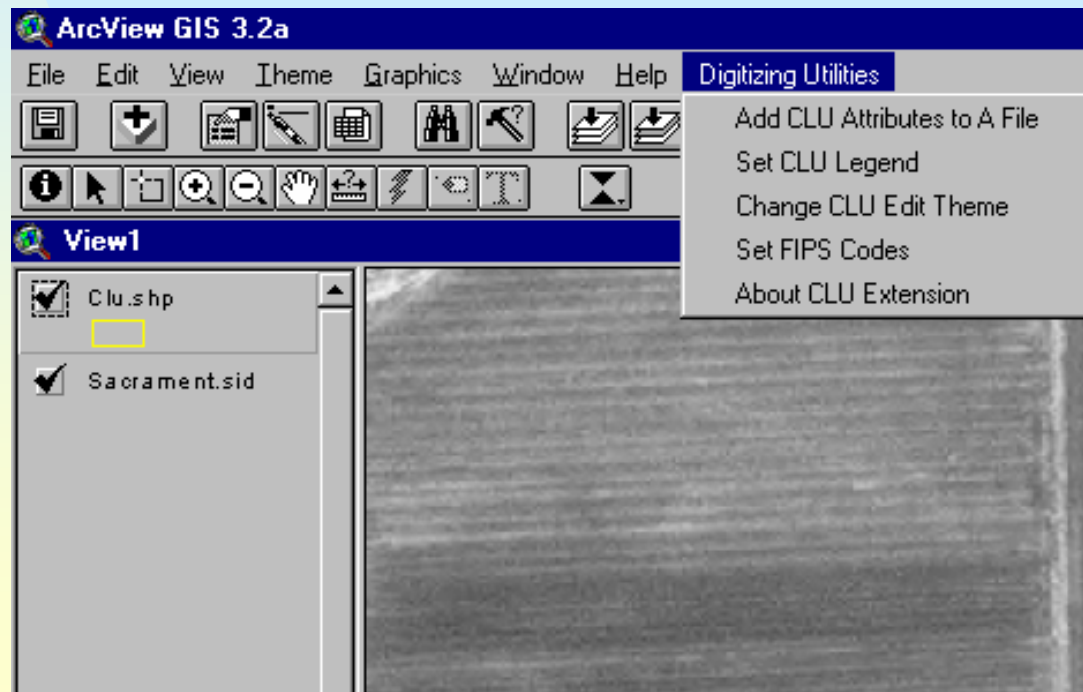
- *Add CLU Attributes to a File* allows you to add the 8-CM tabular data items to a file created outside the Digitizing tool.
- *Set CLU Legend* allows you to add a layer to a project and change the legend quickly to the thin yellow CLU outline.



CLU Digitizing Utilities



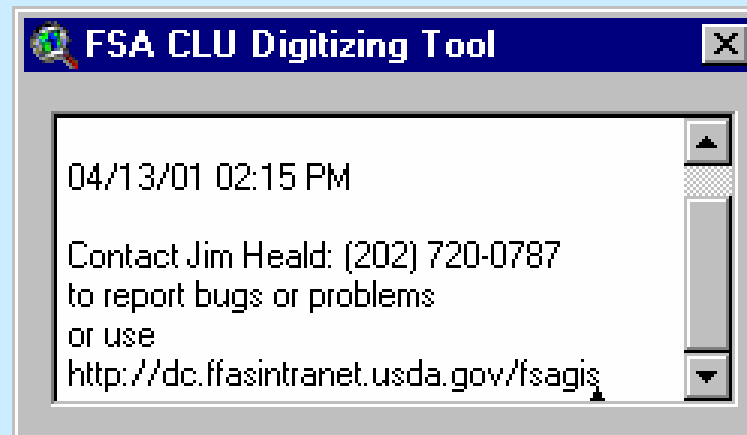
Only one theme can be designated as the CLU edit theme at any time. This menu option allows you to keep more than one CLU theme in your view and switch between them as appropriate for editing and searching. Also, whenever you create a new CLU theme, it is automatically designated as the CLU edit theme. To change CLU edit themes, choose a theme from the list and click “OK”.



CLU Digitizing Utilities



About CLU Extension brings up a dialog box that contains the release date for the current installed version of the tool and additional contact information.



Saving the Project

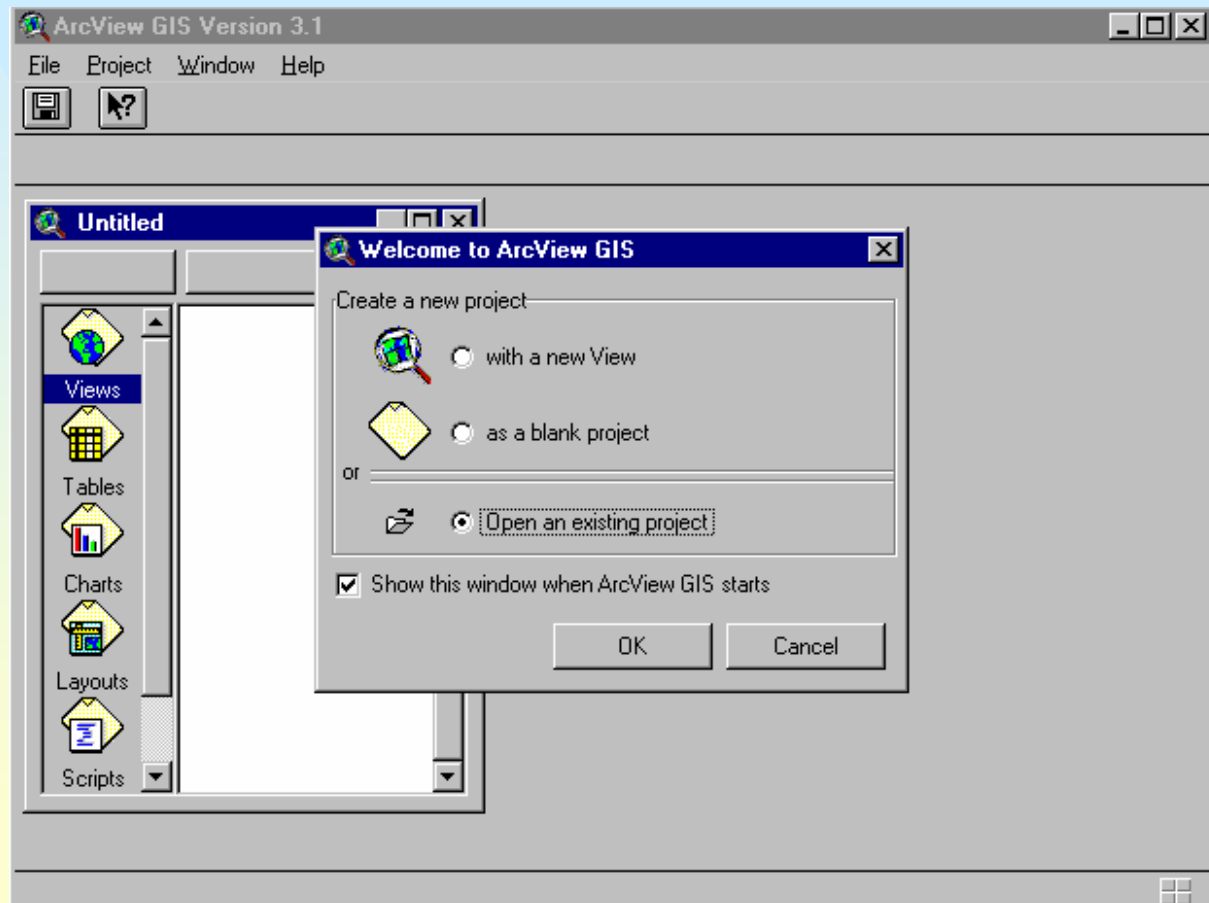


- Once you save your project, the CLU Digitizing Extension becomes part of your project and does not have to be reloaded
- Give the project an appropriate name for the county and sub-county area that you are working on
- When you open the project again, all your data will be available for editing

Adding new data to an existing project



- Open ArcView and choose *Open an existing project*



Adding new data to an existing project



The CLU extension and all the data you have been working on has already been saved to your project. All you need to do is open the project you created in your previous editing session.

If you need to load additional DOQ imagery to work on a new township, you can do this.

Your CLU data file is already loaded for you to begin editing.

Wetland Tool

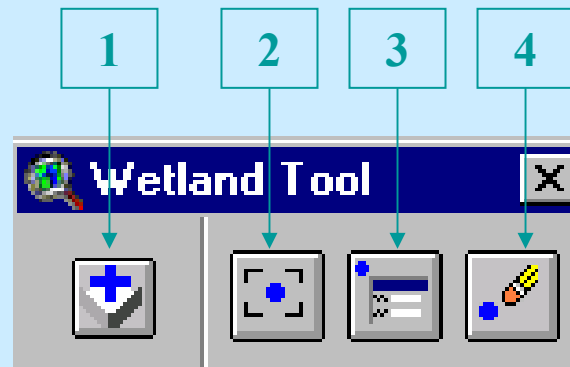


This tool will be used to approximate the location and size of Wetland areas. It will help FSA employees to determine whether a farmer needs to meet with NRCS about possible wetland areas located on their farm. This theme will be a point theme and will contain four areas of information: Status, Label, Acreage, and Certification Date.



THIS PROCESS IS ONLY AN APPROXIMATION.

Click on the button labeled “Wetland Tool” to open the “Wetland Tool” dialog.



1 - Add/Create Wetland Theme

3 - Update Wetland Point

2 - Add Wetland Point

4 - Delete Wetland Point

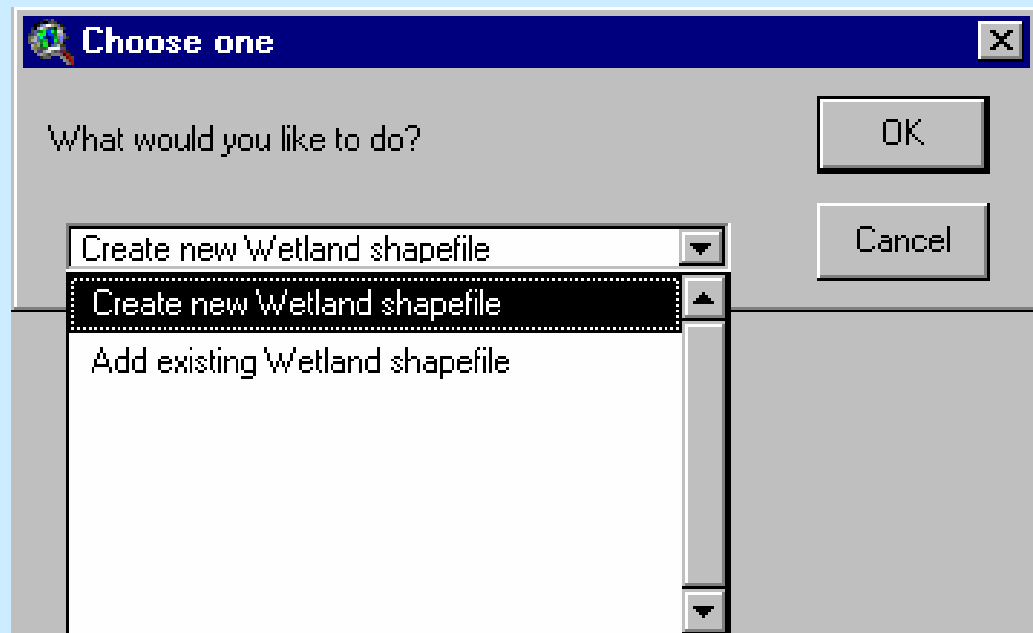
Wetland Tool



Click on the button labeled *Add / Create Wetland Theme* to open the “Add / Create Wetland Theme” dialog.



Choose either “Create new Wetland shapefile” or “Add existing Wetland shapefile” then click on “OK.”



Create New Wetland Shapefile



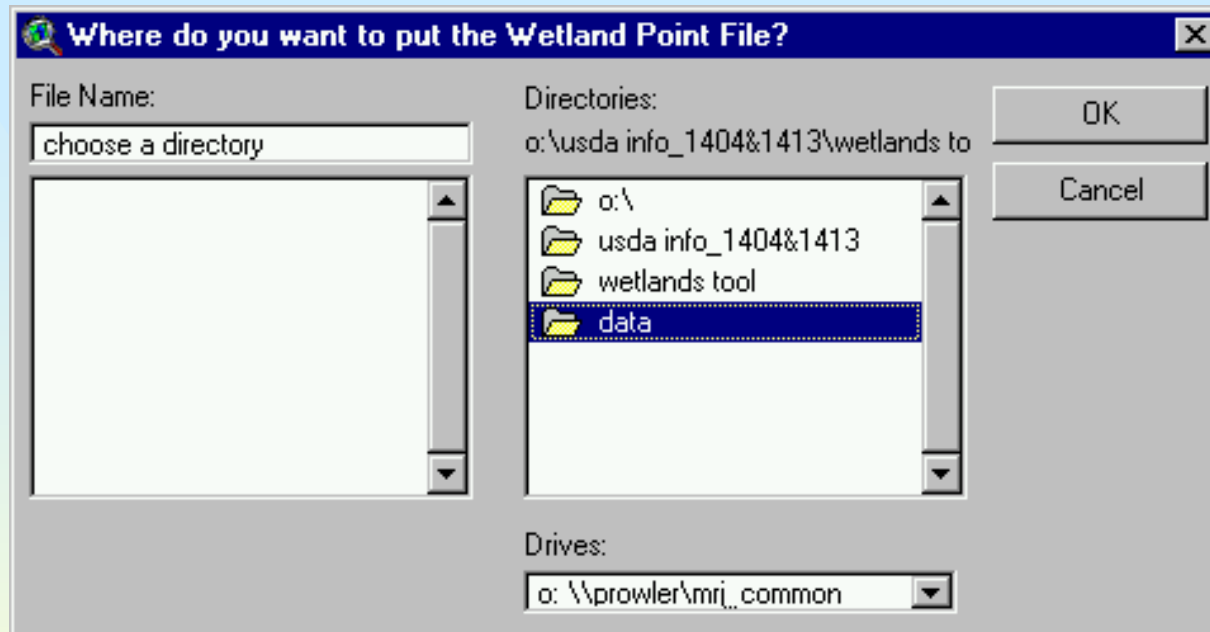
After selecting “Create new Wetland shapefile,” the “Enter State / County FIPS” dialog box will open.

A screenshot of a software dialog box titled "Enter State / County FIPS". It has a dark blue header bar. Below the header, there are two input fields: "State Fips Abbreviation" with a dropdown menu showing "KS", and "County Fips (3 digit number)" with a text box containing "121". At the bottom, there are two buttons: "Set FIPS" and "Cancel".

Enter State / County Fips	
State Fips Abbreviation	KS
County Fips (3 digit number)	121
Set FIPS	Cancel

After entering the correct FIPS numbers, click on the “Set FIPS” button and choose the directory location where the new shapefile will be stored. Note: If a CLU shapefile has been loaded already using the CLU Maintenance Tool, the new Wetland shapefile will automatically be stored in the same directory as the CLU shapefile.

Create New Wetland Shapefile

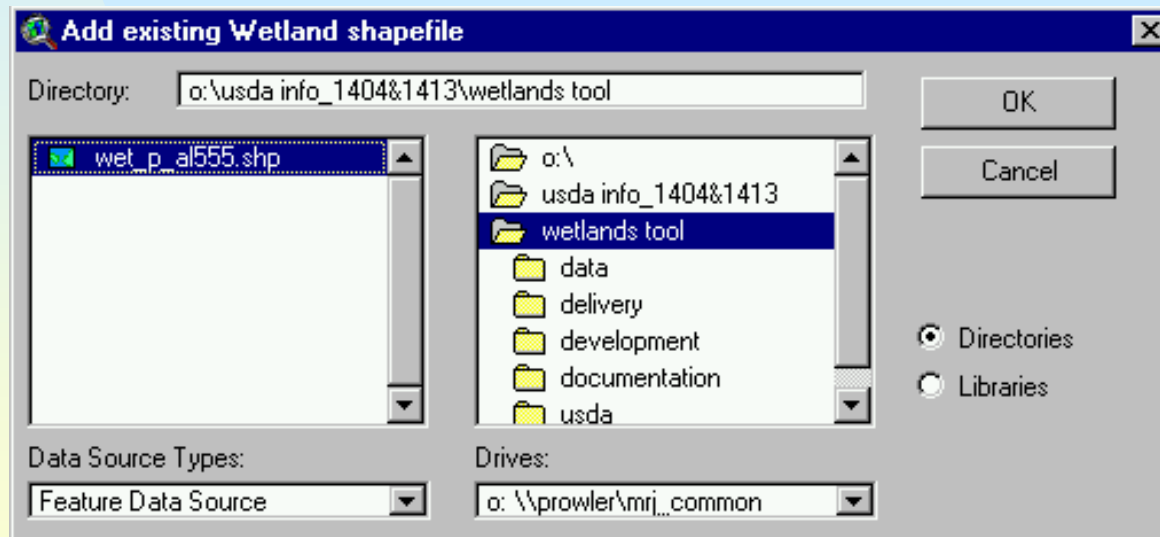


Now a new “Point” theme will be added to the View. The name begins with “wet_p_” followed by the two letter state abbreviation and three digit County FIPS number entered in the “Enter State / County FIPS” dialog followed by “.shp”.

Add Existing Wetland Shapefile



After selecting “Add existing Wetland shapefile” a dialog box will prompt the user to “Add existing Wetland shapefile”. Browse for and select an existing wetland shapefile, then click the “OK” button.

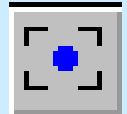


Now an existing “Point” theme will be added to the View.

Add Wetland Point



Click on the *Add Wetland Point* button. A new cursor will appear which will allow the user to place a point on the wetland theme. Move the cursor to the area where a point should be placed and click the left mouse button. An attribution dialog will appear.

A screenshot of a software dialog box titled "Wetland Attribute Data Entry". The dialog has a dark blue title bar. It contains several input fields: a "Label:" dropdown menu showing "--NO SELECTION--", a "Status:" dropdown menu also showing "--NO SELECTION--", and an "Acreage:" text input field. Below these is a "Certification Date:" section with three separate input boxes for "Month", "Day", and "Year", separated by backslashes. At the bottom right are "OK" and "Cancel" buttons.

Wetland Attribute Data Entry

Label: --NO SELECTION--

Status: --NO SELECTION-- Acreage:

Certification Date:

Month \ Day \ Year

OK Cancel

Attribute Wetland Point



Click on the button labeled “Attribute Wetland Point”. A new cursor will appear which will allow the user to change the attribution on an existing point. Move the cursor over an existing point and click the left mouse button. Now an attribute dialog will appear, which will display all previously attributed data for that point.

A screenshot of the "Wetland Attribute Data Entry" dialog box. The dialog has a dark blue title bar with the text "Wetland Attribute Data Entry" in white. Below the title bar, there are several input fields: a "Label" dropdown menu showing "PC - Prior Converted Cropland", a "Status" dropdown menu showing "Inventoried", and an "Acreage" text box containing "75.2". Below these is a "Certification Date" section with three small text boxes for "Month", "Day", and "Year", containing the values "10", "10", and "2000" respectively, separated by backslashes. At the bottom right of the dialog are two buttons: "OK" and "Cancel".

Certification Date:		
Month	Day	Year
10	10	2000

Attribute Wetland Point



There are four areas of attribution:

Label - This consists of a drop down list of 24 wetland label choices.

Status – This consists of a drop down list of 3 wetland status choices.

Acreage – This is an input field for the listed acreage

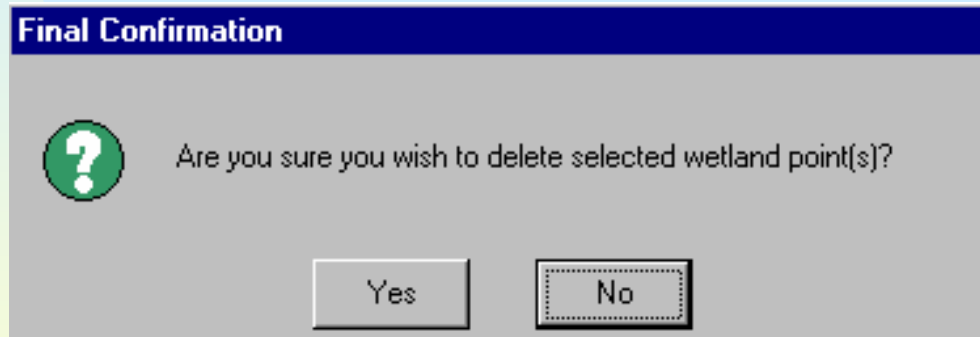
Certification Date – This in a series of input fields for certification date

The user should modify the appropriate fields to reflect the correct information, then click on the “OK” button.

Delete Wetland Point



This button allows the user to delete any wetland point in the View. Simply place the cursor over the point that needs to be deleted and click on the left mouse button. The program will ask if you are sure you want to delete the selected wetland point. Choose “yes” or “no”.



Note: It is possible to delete multiple wetland points by selecting the delete wetland point button and drawing a box around all of the points to be deleted.

CLU Digitizing Center Contacts



- Project Support and Digitizing Standards: Scott Willbrant, Project Manager, FSA Kansas State Office (785) 539-6988 scott.willbrant@bbs.fsa.usda.gov
- CLU Tool Software Problems: Jim Heald, CLU Project Technical Support, FSA, WDC (202) 720-0787 jim_heald@wdc.usda.gov
- Quality Assurance Issues: Rodney Johnson, APFO, Salt Lake City (801) 975-3500 x262 rlj@apfox.apfo.usda.gov
- Basic Hardware and Software Issues: USDA Service Center Help Desk (816) 926-1552 or (800) 255-2434
- FSA GIS Homepage: <http://dc.ffasintranet.usda.gov/fsagis/>